INDUS UNIVERSITY

INDUS INSTITUTE OF TECHNOLOGY & ENGINEERING

Constituent Institute of Indus University

B.Tech. Semester:	V	Branch:	CE-IT-CSE
MID SEM EXAMINATION SEPTEMBER 2022			
Subject Code:	CE0516	Subject Name:	Design and Analysis of Algorithms
Date:	12/09/2022	Time:	01:00 PM to 02.30 PM
Day:	Monday	Total Marks:	40

Instructions:

1. Figures to the right indicate full marks.
2. Make Suitable assumptions wherever necessary & indicate.

Q.1 (a) What is an algorithm? Explain its characteristics. **05**

(b) Explain Binary Search Algorithm with an example. **05**

(c) How Many Activities could be selected? Solve Using Activity Selection Algorithms. **05**

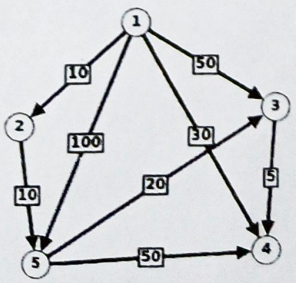
Activity	A1	A2	A3	A4	A5	A6	A7	A8
Start	1	0	1	4	2	5	3	4
End	3	4	2	6	9	8	5	5

Q-2 (a) What do you mean by Asymptotic notations? Explain with Graph and formula. **05**

OR

(a) Sort following numbers with the Insertion sort algorithm. **05**
10 50 30 20 40 60 70

(b) Find Shortest path of all nodes from node 1. **05**



		OR	
	(b)	Find Maximum Profit Using Fractional Knapsack problem. BAG CAPACITY = 15 P: 10, 5, 15, 7, 6, 18, 3 W: 2, 3, 5, 7, 1, 4, 1	**05**
Q-3	**(a)**	What do you mean by Amortized analysis? Discuss different techniques in detail.	**05**
		OR	
Q-3	**(a)**	Sort these numbers using the Quick Sort Algorithm. 11 66 22 55 44 33 77	**05**
Q-3	**(b)**	Write down an algorithm of Selection sort. Also write down best case, average case and worst case time complexity.	**05**
Q-3	**(c)**	Solve following using Master method • T(n)=4T(n/2)+n^2	**05**